REMARKS

Claims 1-19 are pending in the present application.

At the outset, Applicants wish to thank Examiner Prats for the helpful and courteous discussion with their undersigned Representative on October 28, 2003. During this discussion potential strategies for overcoming the rejections of record were discussed, including the art and deposit rejections. Applicants believe that the amendment and remarks set forth herein reflect the context of this discussion. Reconsideration is respectfully requested.

The rejection of Claims 1-5 under 35 U.S.C. §103(a) over Weinhäusel et al is traversed.

Applicants wish to bring the Examiner's attention to the fact that the disclosure of Weinhäusel et al relates to an *in vitro* enzymatic assay (see, for example, page 511, right column), whereas the claimed invention pertains to a whole cell catalyst. Although the skilled artisan may recognize that *Corynebacterium* contain an enzyme capable of producing glucose-1-phosphate, the artisan would not readily appreciate that it is possible to produce and accumulate glucose-1-phosphate by utilizing a whole cell catalyst, absent purification and enrichment of the enzyme responsible for this conversion. In particular, Applicants note that typically the intracellular levels of enzymes are rather low and, as such, it is expected that the concentration of the product formed would similarly be low.

Applicants also wish to make the following points with respect to why the present invention using a whole cell catalyst would not be obvious in view of the art of record:

1) Maltodextrin phosphorylase, which produces G-1-P from α-glucan, is generally present in a microorganism. To produce G-1-P by culturing, it would be necessary for the cell to intake phosphoric acid and α-glucan as substrates and to secrete G-1-P that has been produced in the cells. However, it is generally very difficult for microorganisms to conduct this material transfer action.

2) Since G-1-P is an intermediate of saccharometabolism, it does not seem to exist in the cell as G-1-P, and seems to be used in the synthesis of glucan and energy metabolism.

3) Based on points (1) and (2), the skilled artisan would readily appreciate the complexity involved in G-1-P production. As such, G-1-P production is not generally attainable under ordinary culture conditions.

4) The present invention is based on the finding that by culturing Corynebacterium in the presence of highly concentrated phosphoric acid, G-1-P can be efficiently produced in the supernatant of the culture medium. As is apparent from Table 1 in the present specification, Corynebacterium bacteria show very high production compared to other bacteria belonging to Bacillus. The production is far superior when the phosphoric acid is increased to the claimed range (see Tables 1 and 2).

5) Weinhäusel et al, and any of the art of record, fail to disclose or suggest culturing Corynebacterium under the high concentration of phosphoric acid as in Claim 1.

Applicants submit that the aforementioned points are further reinforced by reference to the enclosed copies of Nidetzky et al, Weinhäusel et al (Enzyme Microb. Technol. 1995), and Linder et al, as well as the cited disclosure of Weinhäusel et al.

MPEP §2142 states: "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation... to modify the reference... Second, there must be a reasonable expectation of success. Finally, the prior art

reference... must teach or suggest all the claim limitations." In view of the foregoing, the artisan would have no motivation to alter the disclosure of Weinhäusel et al to suggest the production of G-1-P by a whole cell catalyst, much less the claimed concentration of phosphoric acid. Moreover, Weinhäusel et al would fail to render the present invention obvious as this disclosure fails to provide the requisite "reasonable expectation of success" for the production of G-1-P by a whole cell catalyst.

Applicants request withdrawal of this ground of rejection.

The rejection of Claims 1 and 3-5 under 35 U.S.C. §112, first paragraph (enablement), is traversed.

Applicants submit that all of the bacterial strains recited in the specification and claims are readily available through commercial sources. For example, *Corynebacterium callunae* IFO 15359 can be obtained form the American Type Culture Collection (ATCC), Manassas, VA (USA). Accordingly, Applicants submit that biological deposit of the strains useful in the present invention is unnecessary.

In view of the foregoing, Applicants believe that the present application is in full compliance with 35 U.S.C. §112, first paragraph. Withdrawal of this ground of rejection is requested.

The objection to Claim 3 under 37 C.F.R. §1.75(c) as being in improper multiple dependent form is obviated by appropriate amendment. Withdrawal of this ground of objection is requested.

Applicants submit that the present application is now in condition for allowance.

Early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Norman F. Oblon
Attorney of Record
Registration No. 24,618

Vincent K. Shier, Ph.D.
Registration No. 50,552

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)
NFO:VKS